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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,661	12/21/2001	Robin E. Wright	56076US002	2699
32692	7590	04/26/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			BERMAN, SUSAN W	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

KB

<b>Office Action Summary</b>	<b>Application No.</b> 10/028,661	<b>Applicant(s)</b> WRIGHT, ROBIN E.	
	<b>Examiner</b> Susan W Berman	<b>Art Unit</b> 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-20,24,25 and 27-31 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-20,24,25 and 27-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1711

***Response to Amendment***

The amendment filed 02-13-2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: a composition "essentially free of a cationic organometallic complex" recited in claims 1, 24 and 29. The examiner has not found any discussion or disclosure that it was recognized at the time of invention that the instantly claimed composition should be essentially free of a cationic organometallic complex. The composition described within the specification is a free radically curable composition containing a free radical photoinitiator.

Applicant is required to cancel the new matter in the reply to this Office Action.

The rejection of claims as being anticipated by Palazzotto et al (5,521,227) is withdrawn in response to the amendment. The rejection of claims as being anticipated by Williams et al (5,462,797) is withdrawn in response to the amendment. However, the rejections will be reinstated upon cancellation of new matter in the amended claims.

***Response to Arguments***

Applicant's arguments filed 02-13-2004 have been fully considered and have been found persuasive with respect to the previous rejections of claims under 35 USC 102 as being anticipated by Matthews et al or by WO 92/15651.

Applicant argues that Matthews et al teach using a Fusion systems UV lamp having a type H bulb as the second irradiation source providing substantial power output in the range below 300 nm and that the type H bulb has a maximum output occurring at a wavelength above 300 nm. It is agreed that an "H" bulb has a maximum output at wavelengths above 300 nm. See Schaeffer et al "The Criticality of Peak Irradiance (Light Intensity) As It Relates to Efficient UV Curing", page 1, now made of record.

Art Unit: 1711

Applicant argues that WO 92/15651 also fails to disclose a second irradiation step wherein the second radiation source has a maximum spectral output at a wavelength less than 300 nm. This argument is found persuasive for the same reasons as set forth above.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is no antecedent basis in amended claim 1 for the photoinitiator recited in claims 10-12.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 10, 15, 16 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matthews et al (4,313,969). Matthews et al disclose sequential steps for photopolymerizing a UV curable acrylourethane coating composition using two different radiation sources that provide radiation at wavelengths above 300 nm first and then radiation at wavelengths less than 300 nm. See the Abstract, column 3, lines 14-56, column 4, lines 27-43, column 5, lines 41-54, Examples 1 and 2 and claim 1. The spectral distribution is adjusted by employing a plurality of source means having different spectral outputs and irradiating the composition with a selected one or a combination of source means (claim 12). With

Art Unit: 1711

respect to claims 10, 15 and 16, the conventional UV curable acrylourethane coating compositions used in examples 1 and 2 would be expected to contain a photoinitiator in an amount less than 5 % and to contain acrylate monomers in amounts of at least 30% as set forth in the claims, in the absence of evidence to the contrary.

It would have been obvious to one skilled in the art at the time of the invention to adjust the spectral distribution using different spectral outputs while providing a first irradiation at wavelengths above 300 nm and a second radiation at wavelengths less than about 300 nm in the method for photopolymerization disclosed by Matthews et al. Matthews et al provide motivation by teaching that the spectral distribution can be adjusted by employing a plurality of source means having different spectral outputs and irradiating the composition with a selected one or a combination of source means. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of controlling gloss, as taught by Matthews et al.

Claims 1-8, 10-20 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/15651 in view of Takahira et al (6,299,975). WO '651 teaches sequential irradiation using low intensity irradiation followed by high intensity irradiation for production of acrylic based adhesives. The first stage is preferably performed with fluorescent black lamps having an output between 300-400 nm (page 8, lines 20-21). The second stage employs a high pressure or medium pressure mercury lamp, mercury xenon or similar type doped lamps which operate at 100-600 watts/inch input power (page 8, lines 21-26). WO '651 teaches that the type of lamp that is useful depends on the photoinitiator that is used (page 8, lines 15-19). The photoinitiator specifically disclosed by WO '651 in the Examples is 2,2-dimethoxy-2-phenylacetophenone. The limitations of claims 3, 6, 7, 8, 10-20 and 25 are taught. See page 5, line 5, to page 7, line 4, page 8, lines 8-9, and Examples 1 and 11.

Takahira et al disclose photopolymerization of pressure sensitive adhesive compositions comprising acrylate monomers and photoinitiators the same or analogous to those disclosed by WO '651.

Art Unit: 1711

Mercury lamps, including low-pressure mercury lamps, are employed to provide UV light having wavelengths from 180-460 nm in the disclosed method. See column 2, lines 37-60, column 5, line 51, to column 6, line 4, and column 7, lines 12-26.

It would have been obvious to one skilled in the art at the time of the invention to select a fluorescent black lamp to perform a first stage of irradiation at wavelengths between 300-400 nm in the method disclosed by WO '651 because WO '651 teaches that the first stage in the disclosed process is preferably performed with fluorescent black lamps having an output between 300-400 nm. It would have been obvious to one skilled in the art at the time of the invention to select a mercury lamp providing wavelengths in the range including 254 nm for use in the second stage of the multistage polymerization disclosed by WO '651 because the photoinitiator 2,2-dimethoxy-2-phenylacetophenone used in the examples has a high molar extinction coefficient at 254 nm. See the Ciba trade literature "Extinction Coefficients of Ciba Photoinitiators" attached to this Office Action. WO '651 provides motivation by teaching that the type of lamp that is useful depends on the photoinitiator that is used. It would further have been obvious to one skilled in the art at the time of the invention to substitute a low-pressure mercury lamp as ultraviolet ray source for the high or medium pressure mercury lamp used in the second stage polymerization disclosed by WO '651, as taught by Takahira et al in analogous art. WO '651 provides motivation by teaching that lamps similar to high or medium pressure mercury lamps are useful. Takahira et al provide motivation by teaching that any of low pressure, medium pressure or high pressure mercury lamps are useful equivalents as the UV ray source for polymerization of acrylic psa compositions comprising a photoinitiator. The limitations of claims 30 and 31 are considered to be inherent properties of the radiation sources disclosed in the references, in the absence of evidence to the contrary.

Claims 1-20, 24, 25 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/15651 in view of Martens et al (4,181,752). The disclosure of WO '651 is as discussed above.

Art Unit: 1711

Martens et al teach the characteristics of different light sources, including fluorescent black lamps and germicidal mercury lamps and effects on photopolymerization of psa compositions analogous to those taught by WO '651. Martens et al teach that an inert atmosphere can be obtained by sandwiching the compositions between sheets materials (column 5, lines 9-19). See column 3, lines 34-56, column 4, lines 21-58, column 5, lines 20-41, column 6, line 21, to column 7, line 58, Examples 1-22 and Tables II-V.

It would have been obvious to one skilled in the art at the time of the invention to select a fluorescent black lamp to perform a first stage of irradiation at wavelengths between 300-400 nm, as taught by WO '651, because WO '651 teaches that the first stage in the disclosed process is preferably performed with fluorescent black lamps having an output between 300-400 nm. Martens et al provide additional motivation by teaching that better cohesive strength is obtained when a fluorescent lamp is used (Examples 1-17). It would have been obvious to one skilled in the art at the time of the invention to select a mercury lamp providing wavelengths in the range including 254 nm for use in the second stage of the multistage polymerization disclosed by WO '651 because the photoinitiator 2,2-dimethoxy-2-phenylacetophenone used in the examples has a high molar extinction coefficient at 254 nm. See the Ciba trade literature "Extinction Coefficients of Ciba Photoinitiators" attached to this Office Action. WO '651 provides motivation by teaching that the type of lamp that is useful depends on the photoinitiator that is used. It would have been obvious to one skilled in the art at the time of the invention to substitute a germicidal mercury lamp as ultraviolet radiation source for the high or medium pressure mercury lamp used in the second stage polymerization disclosed by WO '651, as taught by Martens et al in analogous art. WO '651 provides motivation by teaching that lamps similar to high or medium pressure mercury lamps are useful. Martens et al provide motivation by teaching that a medium pressure or germicidal mercury lamps are useful equivalents as the UV ray source for polymerization of analogous acrylic psa compositions comprising a photoinitiator and, optionally, a photoactive crosslinking agent. The limitations of claims 30 and 31 are considered to be inherent properties of the radiation sources disclosed

Art Unit: 1711

in the references, in the absence of evidence to the contrary. With respect to the limitation of claim 25, It would have been obvious to one skilled in the art at the time of the invention to determine the optimum fluence rate of radiation required to obtain the desired degree of polymerization (conversion of monomers) for a particular composition from the disclosure of WO '651 in combination with Martens et al. One of ordinary skill in the art at the time of the invention would have been motivated by the teaching of coating thickness and light intensity taught by WO '651 in the examples and the teaching of process variables and rate of polymerization of Martens et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing pressure sensitive adhesives having desired properties.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman  
Primary Examiner  
Art Unit 1711

SB  
4/21/04